

THE MINERAL INDUSTRY OF

TURKEY

By Philip M. Mobbs

Turkey was a major producer of barite, boron minerals, celestite (strontium), emery, feldspar, limestone, magnesite, marble, perlite, and pumice. A wide variety of primary metallic minerals were produced as well. Turkey was a major world producer of processed mineral commodities, which included refined borates and related chemicals, cement, ceramics, and glass, and was a significant producer of ferrochromium and steel. The severe August 17, 1999, earthquake disrupted western Turkey. Most mineral operations suffered minimal damage, although transportation routes, especially bridge overpasses, were adversely affected. Damage to the oil and gas sector was expected to cost about \$387 million to repair. Restoration of the Türkiye Petrol Rafinerileri A.Ş. refinery near Izmit to repair damage caused by the earthquake and subsequent week-long fire at the adjacent tank farm was expected to take 12 to 15 months (Lowe, 1999).

For more extensive coverage of the Mineral Industry of Turkey, see the 1998 Minerals Yearbook, volume III, Mineral Industries of Africa and the Middle East.

Reference Cited

Lowe, Monica-Lucie, 1999, After the quake: Middle East Economic Digest, v. 43, no. 41, October 15, p. 8.

Major Sources of Information

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TABLE 1
TURKEY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/
METALS					
Aluminum:					
Bauxite 3/	232,278	544,513	369,482 r/	458,028	160,000
Alumina, gross weight	171,978	159,298	164,333	156,825	159,122 4/
Metal, smelter	61,514	60,000 e/	62,019	60,000 e/	62,000
Antimony:					
Ore, mine output:					
Gross weight	7,856	5384	585	500 e/	500
Sb content	416	285	31	30 e/	30
Concentrates:					
Gross weight	1163	700	500	100 e/	10
Sb content	291	175	125	20 e/	20
Cadmium	23 e/	42	89	69	60
Chromite, gross weight (34% to 43% chromic oxide) 5/	2,080,043	1,279,032	1,702,623	1,404,470	770,352 4/
Copper:					
Mine output (exclusive of pyrite): 6/					
Gross weight	3,185,628	3,518,754	3,797,874	4,052,175	4,300,000
Cu content of ore	40085	33,792	36,460	40,000 e/	45,000
Concentrates (exclusive of pyrite):					
Gross weight e/	141,000	133,350 4/	325,000 r/	370,000 r/	400,000
Cu content	24,000 e/	29,580	65,000	74,000	80,000
Metal:					
Smelter output (primary and secondary)	33,700 e/	38,600 e/	32,491	35,000 e/	37,000
Refined e/	100,300 r/	100,700 r/	111,400 r/	91,800 r/	78,000
Gold, byproduct of base metals refining e/ 7/ kilograms	1,200	1,000	1,000	1,000	1,200
Iron and steel:					
Iron ore:					
Gross weight thousand metric tons	4,931	6,404	5,986	5,885	4,300
Fe content e/ do.	2,750	3,500	3,239 4/	3,200	2,300
Metal:					
Pig iron and ferroalloys:					
Ferrochromium	94,251	101,450	108,320	110,175	110,000
Ferrosilicon	4,900	4,460	4,730	4,810	4,800
Pig iron	330,070 r/	489,516 r/	577,427 r/	456,465 r/	314,670 4/
Steel, crude including castings thousand metric tons	12,744	13,382	13,644	13,351	14,309 4/
Lead:					
Mine output, Pb and Pb-Zn ores:					
Gross weight	253,100	234,541	262,260	292,065	250,000
Pb content	10,376	10,971	13,113	13,500 e/	12,000
Concentrates:					
Gross weight	5318	4,494	12,063	12,100 e/	12,000
Pb content	1196	3,140	7,912	7,900 e/	7,900
Metal, refined e/	4,000	4,000	7,000	8,000 r/	4,000
Manganese ore, gross weight 8/	37,000	37,000 e/	31,160	53,283	53,000
Silver, mine output, Ag content e/ 9/ kilograms	70,000	70,000	90,200	110,000	100,000
Zinc:					
Mine output, Zn and Pb-Zn ore:					
Gross weight	73,110	104,819	79,035	45,795	12,000
Zn content	9,118	14,921	11,255	6,000 e/	1,500
Concentrates:					
Gross weight e/	9,760 e/	9,981	7,525	5,000 e/	1,300
Zn content	5,774	5,529	4,169	3,000 e/	800
Metal, smelter, primary	17050	22,392	37,074	35,716	27,000
INDUSTRIAL MINERALS					
Aluminum sulfate (alunite)	9,763	6,625	8,323	10,624	10,000
Barite, run of mine	153,719	104,872	226,594	160,042	180,000
Boron minerals:					
Run of mine	1,768,919	2,400,635	2,602,386	2,754,082	2,600,000
Concentrates	1143994	1446697	1568571	1650000 e/	1410000
Cement, hydraulic thousand metric tons	33,153	35,214	36,035	38,200	34,403 4/

See footnotes at end of table.

TABLE 1--Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES 1/ 2/

(Metric tons unless otherwise specified)

Commodity	1995	1996	1997	1998	1999 e/	
INDUSTRIAL MINERALS--Continued						
Clays:						
Bentonite	602499	515,452	521,158	565,708	560,000	
Kaolin	489,635	449,561	472,646	403,733	400,000	
Other	1,649,192	6,405,377	6,400,000 e/	6,000,000 e/	6,000,000	
Emery	14,149	11,092	12,345	19,027	20,000	
Feldspar, run of mine	760250	910,814	1,011,542	1,089,483	1,100,000	
Fluorspar	8873	4,828	5,000 e/	5,000 e/	5,000	
Glass, crude	thousand metric tons	1,150 e/	1,133 4/	1,369 4/	1,410 r/ e/	1,203 4/
Graphite, run of mine e/	20,000	20,000	15,000	15,000	15,000	
Gypsum, other than that for cement	596,967	754,277	413,802	351,557	400,000	
Lime 10/	thousand metric tons	897	1,023	1,170	1,066	1,100
Magnesite, run of mine	1,928,064	2,339,138	1,409,768	2,703,343	2,000,000	
Meerschäum	kilograms	1,000	500	400	400 r/ e/	400
Nitrogen, N content of ammonia e/	366,000 4/	518,800	558,000	560,000	82,400	
Perlite, run of mine	171,058	157,580	103,416 r/	124,312	130,000	
Pumice 11/	845,000 r/	774,000	681,000 r/	579,000 r/	600,000	
Pyrites, cupreous, gross weight	307,992	538,140	559,500	699,408	700,000	
Silica sand, gross weight	thousand metric tons	755	1,514 r/	843 r/	1,138 r/	1,100
Sodium compounds:						
Salt, NaCl, all types	do.	1,444	2,068	2,344	2,170	2,200
Soda ash (trona) e/	do.	385	400	500 4/	500	500
Sodium sulfate, concentrates	314,192	328,953	300,000 e/	300,000 e/	300,000	
Stone:						
Dolomite	425877	981,683	689,989	829,775	800,000	
Limestone, other than for cement	thousand metric tons	20496	40,456	49,108	52,355	50,000
Marble e/	do.	272	1,287	1,166	1,704	1,700
Quartzite	1364558	2,807,279	1,878,339	2,301,270	2,300,000	
Strontium minerals, celestite: e/						
Run of mine	50,000	50,000	50,000	50,000	40,000	
Concentrates	30,000	30,000	30,000	30,000	25,000	
Sulfur: e/						
Native, other than Frasch	17,000	--	--	--	--	
S content of pyrites	163,000	255,000	250,000	350,000	300,000	
Byproduct:						
Petroleum	26,000	25,000	20,000	15,000	15,000	
Other	20,000	25,000	20,000	20,000	20,000	
Total	226,000	305,000	290,000	385,000	335,000	
Talc e/	4,000	4,000	4,000	5,000	5,000	
MINERAL FUELS AND RELATED MATERIALS						
Asphalt, natural	219,848	126,751	117,310	157,334	150,000	
Carbon black	39975	39,273	39,061	39,971	40,000	
Coal:						
Hard coal, run of mine	thousand metric tons	3,377	3,582	3,646	3,336	3,000
Lignite, run of mine	do.	56,031	57,532	56,780	66,499	65,000
Coke and semicoke	do.	3,021	2,297	2,335	2,144	2,811 4/
Gas:						
Natural, marketed	thousand cubic meters	181,515	203,967	250,804	561,995	600,000
Coal, manufactured e/	do.	35,000	37,000	35,000	15,000	15,000
Petroleum:						
Crude	thousand 42-gallon barrels	24,124	25,015	24,696	23,072	21,100
Refinery products:						
Liquefied petroleum gas	do.	9,185	9,580	8,418	8,774	9,089 4/
Gasoline	do.	31,746	30,950	33,067 r/	31,673 r/	29,141 4/
Naphtha	do.	12,110	13,227	13,644	15,917	16,139 4/
Jet fuel	do.	12,119	11,324	13,445	13,767	12,020 4/
Kerosene	do.	605	726	578	583	855 4/
Distillate fuel oil 12/	do.	59,556	55,838	55,248 r/	59,860 r/	59,172 4/
Lubricants e/	do.	2,000	2,000	4,177 4/	4,714	4,000
Residual fuel oil	do.	52,043	49,459	48,012 r/	44,818 r/	44,015 4/
Asphalt	do.	5,940	7,233	8,029	10,912	7,635 4/
Unspecified e/ 13/	do.	6,700	4,000	33 4/	26	25
Total	do.	192,004	184,337	184,651 r/	191,044 r/	182,091

See footnotes at end of table.

TABLE 1--Continued
TURKEY: PRODUCTION OF MINERAL COMMODITIES

e/ Estimated. r/ Revised. -- Zero.

1/ Includes data available through January 1, 2001. Basalt, construction materials (clay, sand, and gravel), diabase, granite, onyx, sandstone, serpentine, slate, and travertine for building stone and limestone and gypsum are quarried for cement manufacture, but information is inadequate to estimate output.

2/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

3/ Data are for public sector only. Data for private sector production are not available, but production is believed to be approximately 30,000 metric tons per year.

4/ Reported figure.

5/ Approximately 70% of gross production is salable product. Previously reported estimates of salable product in metric tons: 1995--1,460,000; 1996--900,000; 1997--1,300,000; and 1998--1,000,000.

6/ Copper mines produce a copper concentrate (of about 22% Cu) and a cupreous pyrite concentrate (about 0.7% Cu). Copper is not recovered from the cupreous pyrite concentrate.

7/ Data are estimated content of Turkish copper refinery tankhouse slimes.

8/ Does not include manganiferous iron ore from the Deveci Mine, production of which amounts to several hundred thousand tons per year and has a manganese content of 3% to 5%.

9/ Includes estimated content of base metals refinery tankhouse slimes.

10/ Data are lime produced for steel production and do not include the widespread artisanal production of lime for whitewash and sanitation purposes.

11/ Turkish pumice production is officially reported in cubic meters and has a density reported to range from 0.5 to 1.0 metric ton per cubic meter. Values in this table have been converted by using 1 cubic meter=0.75 metric ton.

12/ Diesel fuel and special heating oil.

13/ Includes refinery fuel and losses.